Evaluation of
The Electric Company
Summer Learning Program

EXECUTIVE SUMMARY

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EXECUTIVE SUMMARY

This report describes a formative evaluation study of *The Electric Company Summer Learning Program*. The study is part of WestEd's larger *Ready to Learn* formative evaluation activities. Funded by the U.S. Department of Education, the *Ready to Learn* grant supports the development of educational television and digital media targeted at preschool and early elementary school children and their families. Its general goal is to promote early learning and school readiness, with a particular interest in reaching children from low-income families. To create *The Electric Company (TEC) Summer Learning Program,* Sesame Workshop collaborated with *Ready to Learn* joint grantees, the Corporation for Public Broadcasting (CPB) and the Public Broadcasting Service (PBS), in their effort to deliver a next-generation educational ecosystem of integrated transmedia content in literacy and numeracy that is aligned with rigorous academic frameworks and research. Transmedia storytelling is the technique of telling stories across multiple platforms and formats using current digital technologies. The *TEC Summer Learning Program* is a transmedia curriculum that presents a narrative story to students that is presented across multiple forms of media, including television episodes and an online gaming experience. The evaluation of the *TEC* program is important because it contributes to our knowledge of the usefulness of transmedia in educational settings. In addition, it provides valuable feedback to producers, researchers and funders as they plan and create new transmedia products.

The current study focuses on the implementation and educational effectiveness of *The Electric Company (TEC) Summer Learning Program*. *TEC'*s producer, Sesame Workshop, created the *TEC* Out of School Time (OST) curricular model. *TEC* provides 36 hours of content based on mathematics vocabulary, numeracy and literacy skills. This formative study provides feedback to CPB, PBS, and Sesame Workshop on successes and areas of improvement for the program, and examines student outcomes of the summer program. The study took place from March 2011 to September 2011 and includes student participants, ages 6 to 8, from summer programs across the country.

The *TEC Summer Learning Program* curriculum offers teachers explicit directions and scripts detailing the steps to implement multi-media activities geared towards children ages 6 to 8 in summer learning environments that extend the curriculum through games, view-and-do activities, online adventures and video clips. The *TEC* curriculum provides corresponding activity sheets to help support DVD episodes of Season Three of the all-new *The Electric Company* television show and the accompanying *Prankster Planet* online experience. *Prankster Planet* is a transmedia gaming experience that drills more deeply into math-related vocabulary and math skills through multi-layered gameplay and story.

During the study, content was implemented in 5- to 6-week summer programs for 90 minutes a day, for a total of 24 days.[1] This 36-hour curricular model includes: scripted group facilitation, DVDs of 12 new *TEC* episodes (viewing two episodes per week), targeted broadband activities, and individual or peer activities. The logic model that guides the study posits that significant fidelity to the intended implementation of the *TEC* summer curriculum will increase 6- to 8-year-old student skills, motivation to learn, and knowledge and attitudes around literacy and numeracy, particularly with respect to targeted mathematics vocabulary.

The study utilized a mixed-method design to examine how the use of the *TEC Summer Learning Program* affects students' skills, motivation, knowledge, and attitudes toward literacy and numeracy. The study included data from teachers and students, including student usage data for *Prankster Planet* that is collected through Google Analytics.

RESEARCH METHOD

The intervention included the use of the *TEC Summer Learning Program* by 16 teachers in their summer school classrooms during the summer of 2011. A mixed-method study design was used to address the following research questions.

» Are teachers implementing the *TEC Summer Learning Program* as planned? Are there any obstacles to implementation? What variables contribute to fidelity of implementation? (e.g., number of children, children's initial level of knowledge, years of teacher's experience, type of program).

» Do students who participate in the *TEC Summer Learning Program* increase skills in select mathematical domains?

» Do students who participate in the *TEC Summer Learning Program* acquire the mathematics vocabulary targeted by the program?

» Do students who participate in the *TEC Summer Learning Program* increase their comprehension of connected text? Do they learn strategies that good readers use to understand connected text?

» Do students who participate in the *TEC Summer Learning Program* increase their motivation and confidence to engage in learning activities related to literacy?

» Do students who participate in the *TEC Summer Learning Program* increase their motivation and confidence to engage in learning activities related to mathematics?

» Do teachers who participate in the *TEC Summer Learning Program* increase their motivation and confidence leading groups?

» Do teachers who participate in the *TEC Summer Learning Program* report an increase in morale and enthusiasm in their summer school setting?

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[1] Several shorter programs omitted two episodes chosen by Sesame Workshop for a 30-hour, 90 minutes a day curricular model for a total of 20 days.

- » Do teachers who participate in the *TEC Summer Learning Program* learn new instructional strategies in teaching mathematics and literacy?

- » Which aspects of the *TEC* model do students find the most (and least) appealing, interesting, and educational?

- » Which aspects of the *TEC* model do teachers find the most (and least) appealing, interesting, and valuable, particularly in regard to learning content and increasing motivation?

- » Which aspects, if any, of the *TEC* model (including professional development) do the teachers think might need to be refined, improved, or modified? Would teachers use the summer curriculum again? Would they use all or part of the curriculum in their regular classroom? Why or why not?

The following data were collected over the course of the study.

- » *Standards/Skills Aligned Survey*. The student survey included measures of student achievement including researcher-developed items and released math items from the California Standards Test. (Items content aligned with the *TEC* curriculum.) In addition, this survey included items measuring academic motivation and confidence. This survey was given to students at the start of their summer program, and again at the end.

- » *Student Interview*. A series of student interviews took place at each site. Students were asked about their experiences with the *TEC Summer Learning Program* and about the content presented in the curriculum as well as the meaning of targeted mathematics vocabulary.

- » *Teacher Intake Survey*. The teacher intake survey addressed teacher demographics, teacher experience, and school and classroom variables.

- » *Teacher Exit Survey*. The teacher exit survey addressed teacher perceptions of student learning, motivation, and confidence. Teachers provided feedback on the *TEC Summer Learning Program* in light of related research questions.

- » *Student Usage Data From Google Analytics*. WestEd imported the individual student click data and Flash tags from the students who used *Prankster Planet*. These data were analyzed to measure students' time on task in various aspects of the game, and their success in embedded assessments in the game.

- » *Classroom Observation*. Researchers visited study sites several times during the course of the summer. Researchers gathered data about fidelity of implementation at sites, and collected data related to the research questions.

- » *Teacher Interview.* Researchers conducted a mid-visit and final interview with each participating *TEC* teacher. The interview questions were developed to address the research questions, check for fidelity of implementation, and gather feedback on the curriculum.

STUDY PARTICIPANTS

Participants included students ages 6 to 8 years, specifically students between the first and second grades[2], enrolled in 12 diverse 5- to 6-week summer programs throughout the United States for a total of 152 student participants. Participants also included 16 teachers at the 12 summer programs. Teachers implemented the *TEC Summer Learning Program* model in their classrooms. Participating summer programs enrolled a high proportion of children from low-income families and English language learners. Programs were school-site based and located in rural, urban, and suburban areas in California, New Mexico, Utah, New Jersey, Ohio and Washington, D.C.

All students in the study participated in their summer school program as planned. Students were provided with *TEC* content for 90 minutes a day, four or five days a week, depending on the length of their summer program. Teachers received stipends totaling $1000. Each participating site received $500.

ANALYSIS

Data were analyzed to address the study's research questions. The qualitative data (interview data and open-ended items on surveys) were coded and analyzed using the ATLAS.ti and HyperResearch software programs, which allow researchers to assign codes to qualitative data to identify trends and explore relationships across data elements. The initial coding scheme was based upon the model of program implementation identified by *TEC* and specific aspects of the research questions.

Descriptive statistics were also used to illustrate changes in teachers and students as a result of the program. We used inferential analyses, such as paired samples t-tests, to determine whether the students and teachers showed significant growth between the pre-test and post-test surveys. Furthermore, correlations were used to determine if significant associations exist between usage and growth on the surveys.

FINDINGS

WestEd employed quantitative and qualitative data analyses to address the study's research questions. In general, the *TEC Summer Learning Program* was well received in study summer school programs. Teachers highly valued the program and all student outcomes were positive. Specific findings by research question include:

> » Are teachers implementing the *TEC Summer Learning Program* as planned? Are there any obstacles to implementation? What variables contribute to fidelity of

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[2] One site included students between the second and third grades.

implementation? (e.g., number of children, children's initial level of knowledge, years of teacher's experience, type of program).

- — Despite the diversity of the programs (with regard to class size, teacher experience, type of program, etc.), nearly all participating teachers implemented the *TEC Summer Learning Program* as planned.

- — Student outcomes were consistently positive, even with variations in the training teachers received and the delivery of the number of episodes of *The Electric Company.*

- — The obstacles to implementation reported by teachers included: inconsistent student attendance in summer programs; technical difficulties at sites, especially with regard to running *Prankster Planet* on school computers; student lack of computer knowledge; summer program structure (e.g., class size either too small or too big, computer access too far from classroom, etc.); and teacher issues with either the length of time allotted for activities in the curriculum or the content of the curriculum being too challenging for some students.

» Do students who participate in the *TEC Summer Learning Program* increase skills in select mathematical domains?

- — Students showed a 20% gain in their numeracy skills from pre- to post-assessment.

» Do students who participate in the *TEC Summer Learning Program* acquire the mathematics vocabulary targeted by the program?

- — Students showed a 41% gain in their mathematics vocabulary from pre- to post-assesment.

» Do students who participate in the *TEC Summer Learning Program* increase their comprehension of connected text? Do they learn strategies that good readers use to understand connected text?

- — Students showed a 17% gain in their phonics skills from pre- to post-assessment.

- — Twelve out of 16 teachers reported that students had progressed in the area of "learned and used strategies to understand connected text."

» Do students who participate in the *TEC Summer Learning Program* increase their motivation and confidence to engage in learning activities related to literacy?

- — Fourteen out of 16 teachers reported that the students progressed or grew significantly in the area of "motivation and confidence to engage in learning activities related to literacy."

» Do students who participate in the *TEC Summer Learning Program* increase their motivation and confidence to engage in learning activities related to mathematics?

- — Fourteen out of 16 teachers reported that the students progressed or grew significantly in the area of "motivation and confidence to engage in learning activities related to mathematics."

» Do teachers who participate in the *TEC Summer Learning Program* increase their motivation and confidence leading groups?

- — Fifteen out of 16 teachers reported that the *TEC* summer activities increased their motivation and confidence in leading groups.
» Do teachers who participate in the *TEC Summer Learning Program* report an increase in morale and enthusiasm in their summer school setting?
  - — All 16 teachers participating in the *TEC Summer Learning Program* reported that using the program increased student morale and enthusiasm in their summer school setting.
» Do teachers who participate in the *TEC Summer Learning Program* learn new instructional strategies in teaching mathematics and literacy?
  - — Nine out of 16 teachers reported that they learned new instructional strategies for teaching mathematics and literacy. The three most common areas of learning were: new strategies for teaching vocabulary, incorporating technology into lessons, and combining different modes of learning to keep students engaged in a topic.
» Which aspects of the *TEC* model do students find the most (and least) appealing, interesting, and educational?
  - — Teachers reported that students found *Session 1* of the DVD episodes to be the most appealing and engaging aspect of the *TEC* model, followed closely by *Prankster Planet*, and the activity worksheets to be the least engaging and appealing aspect.
» Which aspects of the *TEC* model do teachers find the most (and least) appealing, interesting, and valuable, particularly in regard to learning content and increasing motivation?
  - — Teachers reported *Session 1* of the DVD episodes to be the most appealing, interesting, and valuable aspect of the *TEC* model followed by the teacher-led activities and Jessica's Word Wall. They found the activity worksheets were the least appealing, interesting, and valuable.
» Which aspects, if any, of the *TEC* model (including professional development) do the teachers think might need to be refined, improved, or modified? Would teachers use the summer curriculum again? Would they use all or part of the curriculum in their regular classroom? Why or why not?
  - — Teachers suggested that the professional development training could be improved in a variety of ways, including: allow teachers to see the curriculum being implemented in an actual classroom, dedicate the webinars to questions and answers only (i.e. have teachers review the materials ahead of time), and schedule webinars later in the day for teachers on the west coast.
  - — The aspect of the *TEC* model that evoked the most comments with regard to what might be improved was the worksheets. Comments and suggestions for improvement included: worksheets should include phonics or literacy activities and worksheets were either too far below or above the students' skill levels.
  - — Fifteen out of the 16 teachers reported that they would use *TEC* curriculum again, and 15 out of the 16 teachers reported that they would recommend the curriculum to other summer school or afterschool teachers.

— Thirteen out of 16 teachers reported that they would use all or part of the curriculum as part of their regular classroom activities. All three of the teachers who said they would not use it as part of regular classroom teaching stated that, while they would not use it as their primary teaching tool, they would use portions of the *TEC* curriculum to reinforce concepts already taught in the classroom.

CONCLUSION

The results suggest that the *TEC Summer Learning Program* can be a valuable tool for educators to boost student interest in learning and to promote academic achievement in specific content areas related to numeracy and literacy. The evaluation focused on the use of the *TEC Summer Learning Program* in summer school programs serving students ages 6 to 8 years from low-income families. Students and teachers in the study found *TEC* to be engaging throughout the entire 24 days included in the model. The findings from this mixed-methods formative study suggest that the *TEC Summer Learning Program* can increase children's interest in learning in specific subjects, and can contribute to increased academic achievement in numeracy and literacy. In addition to gains in student outcomes, teachers who used the curriculum reported gains in their own learning, particularly around ways to deliver instruction and technology use.

This comprehensive mixed methods study produced important findings about the *TEC Summer Learning Program* and its effects on students, particularly in relation to its effects on students' classroom engagement, interest in academic content, and student learning in the summer school environment. The *TEC* curriculum is unique in that it is combines different modes of instruction (television show episodes, small and large group hands-on activities, and online gaming) to engage students in the academic content. It is intended to be delivered in the Out of School Time (OST) environment, yet support students' learning of core academic skills. This study is important in that is shows that an innovative transmedia summer program can fit seamlessly into the summer school environment and support schools as they strive to engage and teach students from widely diverse backgrounds and ability levels.

The current study highlights the promise of transmedia in OST environments for student learning and success. The study also shows that teachers can successfully use and embrace a transmedia curriculum. The findings suggest that further study is warranted to explore how students learn in the *TEC* curricular environment. Topics for future study include: the added value of each aspect of the *TEC Summer Learning Program* (television show episodes, small and large group hands-on activities, and online gaming), how teachers expand on the *TEC* curriculum, how teachers use aspects of the *TEC* curriculum in their regular classrooms, expansion of the *TEC* curriculum to include new digital devices, and use of the *TEC* curriculum in other OST environments, such as in after-school programs.